REMARKS

Claims 1-14 and 17-21 are pending. Claims 1 and 9-11 were previously withdrawn. Claims 15-16 were filed on 20 April 2004 in response to the Final Office Action mailed 05 February 2004, but were refused entry as indicated in the Advisory Action mailed 29 April 2004. By this Amendment, Claim 14 is amended and new claims 17-21 are added.

Applicant gratefully acknowledges the courtesy extended by the Examiner to Applicant's representative during the 17 March 2004 personal interview. Claim 2 and U.S. Patent No. 5,420,850 to Umeda, *et al.* were discussed. Function and operation of exemplary embodiments of the invention were also discussed. Substance of the interview is also incorporated in the remarks below.

In the Office Action, the Examiner rejects Claims 2-7 and 12-14 under 35 U.S.C. § 102(b) over U.S. Patent No. 5,420,850 to Umeda, *et al.* (Umeda). The Examiner also rejects Claim 8 under 35 U.S.C. § 103(a) over Umeda in view of U.S. Patent No. 5,583,851 to Kato (Kato). These rejections are respectfully traversed.

In accordance with exemplary embodiments of the present invention, a receiver estimates interference using "at least one reserved code" that is not used for transmitting signals, for example within a communication cell or communication system to which the receiver belongs. In other words, the receiver receives a composite signal and then despreads the received signal using the reserved code. Since the reserved code is not used to spread and transmit data within a communication cell or a communication system to which the receiver belongs, the despread signal will contain no data for the receiver or the cell or system. The only

thing left in the signal after despreading is noise with respect to the receiver. Therefore, the despread signal indicates a measurement of interference.

These exemplary embodiments and methods of the present invention provide significant advantages over Umeda. For example, the present invention can be used to estimate interference that occurs simultaneously with transmission/reception of desired signals, or exactly at the time when the paths are received. This provides significant advantages over Umeda, because when orthogonal codes are used, the interference exactly when the path is received is lower than the total received power as estimated by Umeda. This lower and more accurate estimate enables the communication system to operate more efficiently and effectively.

In contrast, Umeda discloses despreading a received signal, wherein within a time window (e.g., a-b as shown in Figure 6A) the despread signal is considered to contain data, and outside the window the signal is considered to contain only noise. The noise outside the window is accumulated to obtain an interference signal level that is then subtracted from the signal received during or within the window, to reduce or remove signal interference. See, for example, Column 9, lines 14-29; and Figure 4.

The American Heritage College Dictionary, Third Edition, Copyright 1993 by Houghton Mifflin Company, defines "only" as alone; exclusively; solely.

Umeda does not disclose using a code for interference measurement *only*. Instead, Umeda teaches using a code to both despread data and obtain an interference signal level.

Applicant further notes that the term "composite signal", recited for example in Claim 2, is sufficiently broad to encompass both control and traffic signals.

Accordingly, Umeda fails to disclose or suggest estimating interference by reserving at least one code in a set of codes for interference measurement *only*, receiving a composite signal, and estimating said interference at a receiver using said at least one reserved code, as recited in Claim 2.

Umeda likewise fails to disclose or suggest a mobile station including a receiver for receiving a signal over an air interface and despreading the signal using at least one channelization code, and a processor for providing the at least one channelization code to the receiver, the at least one channelization code including a reserved code that is *used only to estimate interference* associated with the received signal, as recited in Claim 5.

Umeda likewise fails to disclose or suggest that the at least one reserved code is not used for transmitting signals, as recited in Claim 3, and fails to disclose or suggest a received signal that does not contain data spread with the reserved code and intended for the receiver, as recited in Claim 14.

In the *Response to Arguments* section of the Office Action, the Examiner points out that the control channel carries control information and no traffic data. However, Applicant notes that the term "composite signal", recited for example in Claim 2 from which Claim 3 depends, encompasses both control and traffic signals. Applicant further notes that the term "data" recited in Claim 14 encompasses both control information and traffic data. In other words, control signals are a form of data.

For at least the above reasons, Applicant respectfully requests withdrawal of the rejection of Claims 2, 3-7 and 12-13 under 35 U.S.C. § 102(b) over Umeda.

Kato fails to overcome the deficiencies of Umeda described above. Accordingly, the asserted combination of Umeda and Kato fails to disclose or

suggest the mobile station recited in Claim 5. Claim 8 depends indirectly from Claim 5, and is therefore likewise allowable for at least the same reasons.

For at least the above reasons, Applicant respectfully requests withdrawal of the rejection of Claim 8 under 35 U.S.C. § 103(a) over the asserted combination of Umeda and Kato.

With respect to the new claims, Applicant notes that Umeda and Kato, when considered both separately in combination, fail to disclose or suggest that the at least one code is reserved within a communication cell to which the receiver or mobile station belongs, as recited in Claims 17-18.

Umeda and Kato, when considered both separately in combination, likewise fail to disclose or suggest estimating interference by despreading the received composite signal using the reserved at least one code, wherein the despread result contains only interference with respect to the mobile station, as recited in Claim 19, and similar features in Claim 20.

Umeda and Kato, when considered both separately in combination, likewise fail to disclose or suggest a method for estimating interference in a system comprising a transmitter and a receiver, the method comprising the steps of reserving at least one code in a set of codes for interference measurement only, wherein the reserved at least one code is used within the system only to despread received signals and not to encode signals for transmission, transmitting a signal, receiving the signal, and estimating interference at the receiver by dispreading the received composite signal using the at least one reserved code, as recited in Claim 21.

Applicant respectfully submits that the application is in condition for allowance. Favorable consideration on the merits and prompt allowance are respectfully requested. In the event any questions arise regarding this communication or the application in general, the Examiner is invited to contact Applicant's undersigned representative at the telephone number listed below.

Respectfully submitted,

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Date: 07 June 2004

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